

Psychological Bulletin

MAR 25 1918
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WITH THE CO-OPERATION OF

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PUBLISHED MONTHLY BY THE

PSYCHOLOGICAL REVIEW COMPANY

NORTH QUEEN ST., LANCASTER, PA.,

AND PRINCETON, N. J.

AGENTS: G. E. STECHERT & CO., LONDON (1 Star Yard, Carey St., W. C.);
LEIPZIG (Koenigsstr., 37); PARIS (16, rue de Condé)

Entered as second-class matter January 27, 1904, at the post-office at Lancaster, Pa., under
Act of Congress of March 3, 1879

Psychological Review Publications

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THE PSYCHOLOGICAL BULLETIN

GENERAL REVIEWS AND SUMMARIES

PSYCHOLOGICAL EFFECTS OF DRUGS

BY A. T. POFFENBERGER, JR.

Columbia University

A number of books and articles have appeared during the last year giving a popular review of the facts concerning the effects of alcohol. One of these by Fisk (4), medical director of the Life Extension Institute, presents the results of a study of insurance data concerning the "risks" of users and non-users of alcohol. The physiological effects of alcohol and its relation to human efficiency are also summarized. Bowers (3) gives a popular account of the experimental and statistical studies of alcohol. He includes a chapter on "Alcohol and War" and one on "Alcohol and the College Man." Both of these chapters are composed largely of opinions of leaders in the two fields rather than experimental data. Hollingworth and Poffenberger (6) give a resume of the effects of alcohol and various other drugs on efficiency. Miles (8) repeated the experiments of Dodge and Benedict (*Psychological Effects of Alcohol*) upon one of their subjects. Tests and procedure were duplicated as nearly as possible. The results confirm the findings of Dodge and Benedict. "The two series of measurements taken together unmistakably indicate as a result of a dose of 30 c.c. of absolute alcohol a lengthened reflex latency with a decrease in the amplitude of movement, slower reactions, slower coördinated movements, less sensitiveness to stimulation and an increase in pulse rate. The memory and word reactions, as in the earlier results, were improved after alcohol."

Stockard and Papanicolaou (9) treated guinea pigs with alcohol

fumes and studied the influence of this treatment upon the descendants for four generations. They report that when males are treated and females are normal, the offspring for four generations show defects of various kinds, limited in most cases to abnormalities of the central nervous system and sense organs. The inherited conditions must be due to changes produced by the alcohol inhalation in the germ cells, or in their chromosomes. This work should be of considerable interest to students of mental defects. Bagg (1) measured the effects produced by the inhalation of alcohol fumes upon habit formation in white mice. The maze was used for testing learning power, and 24 hours always intervened between maze trial and alcohol treatment." Animals that had previously made normal records, without the alcohol treatment, were found to make slower average records when the treatment was instituted, and in like manner, . . . when the alcohol treatment and the maze learning were begun at the same time the daily records were again inferior to those of the control group."

Macht and Isaacs (7) studied the effect of some opium alkaloids on the psychological reaction. Twelve subjects were tested, the drug was given by injection and control doses of saline solution were employed. Simple reactions to light, sound and touch, and association reactions consisting of the solution of addition and multiplication problems were measured. Morphin doses varied from $\frac{1}{16}$ to $\frac{1}{4}$ grain (the latter being an ordinary therapeutic dose). The smallest dose produced a period of stimulation as indicated by a shortened reaction time, decrease in mean variation and reduction in the number of errors. This was followed by a period of depression. The larger the dose the shorter the stimulation period became, until with the largest dose it was extremely brief. "From the experiments made with combinations of morphin with other opium alkaloids . . . it appears that morphin given in such a form is more narcotic and correspondingly more depressant to the psychic functions than when the same dose of morphin is administered to the same subject by itself."

Berry (2) measured the effect of smoking upon the mental work of addition. The tests were all made upon himself and nothing comparable to the control doses, considered so necessary in other drug work, were possible. The experiment was continued for 20 days, and on alternate days the subject smoked one cigar. On smoke days the work was done in 7.7 per cent. less time and with slightly fewer errors than on non-smoke days.

Goddard (5) reports an experiment on the effects of pineal gland extract upon mental development. Three subjects, two of the Mongolian type, who were fed the extract for a period of 6 months to one year showed no improvement.

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3. BOWERS, E. F., *Alcohol: Its Influence on Mind and Body*. New York: Cloude, 1916. Pp. 207.
4. FISK, E. O., *Alcohol: Its Relation to Human Efficiency and Longevity*. New York: Funk & Wagnalls, 1917. Pp. 216.
5. GODDARD, H. H., The Vineland Experience with Pineal Gland Extract. *J. of the Amer. Med. Assoc.*, 1917, 68, 1340-41.
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9. STOCKARD, C. R., & PAPANICOLAOU, G., A Further Analysis of the Hereditary Transmission of Degeneracy and Deformities by the Descendents of Alcoholized Mammals. *Amer. Naturalist*, 1916, 50, 65-88; 144-177.

REACTION TIME

BY V. A. C. HENMON

The University of Wisconsin

Evans (2) reports a comprehensive study with trained and untrained subjects of light, sound and touch distractions on simple light, sound and touch reaction times. Distractions uniformly lengthen the times, both with trained and untrained observers, and increase their relative variability. Practice causes an early period of rapid adaptation but the effect of distraction is never completely overcome. Light distraction was most effective at the beginning but waned rapidly. Sound was, on the whole, somewhat more effective as a distraction than light or touch. A warming up period characterized both the series with and without distractions. The distraction effect was greater when the distraction and main stimuli belonged to the same sense. Training acquired by long practice with one stimulus seems to be transferred bodily to another stimulus. Training in reaction with distraction shortens the reaction very

definitely to a different stimulus with the same distraction. Training in reacting without distraction does not appreciably aid in reacting to the same stimulus with distraction. Practice in reacting with a certain distraction does shorten the time of reaction with a different distraction. Training in attention, which means training in ability to ignore non-essentials for the sake of essentials with the accompanying attitudes of self-confidence, self-reliance and interest in the work, make transfer possible.

Austin (1) reports a new method of elimination of the variable errors in "making" and "breaking" of electrical connections where electro-magnet is used. His method is "based on the fact that the arc produced by an alternating current between two electrodes is set up and extinguished twice during each cycle of alternations and also upon the accuracy with which the frequency of an alternating current may be indicated and observed by employing a so-called Frahm frequency meter." The image of the alternating arc, whose frequency is readily determined, is focused upon a moving photographic film. The number of dashes is counted and serves as a basis for measuring reaction time.

Warren and Reeves (3) describe an ingenious arrangement which permits all switches and the chronoscope to be operated by one experimenter. The apparatus, while not regarded as ideal, has been found effective for simple reaction to sound and light and for association reaction to normal stimuli.

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3. WARREN, H. C., & REEVES, P. Hipp Chronoscope Without Springs. *J. of Exp. Psychol.*, 1917, 2, 114-116.

SPECIAL REVIEWS

An Outline of Psychobiology. K. DUNLAP. Baltimore: Johns Hopkins Press, 1917. Pp. 145. (2d edit.)

The present edition of this useful book might well be described as a "corrected" edition. The changes are mainly those of corrections and of slight additions to make matters more readily understood by the beginner. A glossary of terms has been added and the

pronunciation of terms is given in it instead of in the index. The use of plates borrowed from different sources, with different names for the same structures, is continued. This may tend to familiarize the student with several names for the same part, but it is perplexing. The adaptation of the figures could have been made at little expense, and this procedure would have prevented much possible confusion. At the same time the relative sizes of the figures should receive more attention. Some are reduced to an extent which makes them difficult to read, and there is a disproportion in emphasis (compare, for example, Figs. 3 and 78). The psychologist has the right to demand from the publisher as great legibility for the figures in a text as for the type.

The book has been previously thoroughly criticized on the anatomical side and further reference to this aspect is needless. The physiological and the psychological aspects have received less attention. Many physiological statements are scattered throughout the book, and Chapter IX is given up to the physiological-psychological views of the author regarding "the functional interrelations of receptors, neurons, and effectors" in which the relations of the nervous system to "consciousness" are considered. This chapter may well take our attention. The main points which are made are as follows:

All normal physiological processes are reflexes and accessories to reflexes. There is also an "I" or an awareness. The awarenesses are of different kinds, all depending "upon the action of reflexes," some being perceptual (including feelings) and others being thought. The latter are "not initiated in the same receptors" as the perceptual, although the characters of the reflexes are not differentiated beyond saying that they have "the same termini" as the reflexes giving rise to the perceptual awareness. There is no neurological distinction between "reflex" action and "voluntary" action, since all normal actions are the termini of reflexes. Discharge from an afferent neuron may take place along many efferent channels, or the same efferent neuron may be affected by impulses starting from any one of the numerous afferent neurons. When, however, a certain afferent neuron is stimulated it may affect a special set of efferent neurons connected with muscles which produce a predetermined movement. Other efferent elements are also set in activity. In addition, the effectors used for the special activity receive impulses which have originated not in the first afferent neuron but in other afferent elements "not definitely

analyzed." The predetermined reflex (for example, an eye to finger reaction) is the dominant one and "the condition of dominance and subordination is probably typical of the reflexes which condition perceptual consciousness." On the other hand, "the essential condition of attentive consciousness seems to be the functioning of the nervous system as a whole." In the production of serial habits, such as two or more reactions following one stimulation in place of two or more serial stimuli, "the efferent current resulting from the first will be drained into the afferent current of the second, thus setting up an actual arc between the two muscular activities. . . . A long series of reactions, each of which originally depended on a separate stimulation, may become serially connected and follow accurately from the stimulus of the first one. If each link in the chain is 'conscious' . . . the repetition of this series is associative thought; and its formation is the association of ideas." Thought is conceived to depend upon the irritation of muscular receptors, but in certain cases this is unnecessary and it is believed that "the reflexes are short-circuited, *i. e.*, that the efferent current eventually starts an afferent current without descending to the muscle level." Perceptual habits, circular reflexes, and the interrelations of reflexes and consciousness are also dealt with.

Much of this is neither elementary nor obvious. It is almost entirely speculative, although written mostly as if the expressed views recounted discovered facts. Speculation, as such, is not to be condemned, but in a book that purports to give to the student "morphological and physiological data" directly contributory to psychology, it might have been well to label the chapter distinctly as "a theoretical or speculative discussion of the relations of consciousness to neurological and other bodily activities." Many students would then take less literally the views which are expressed. They might also be tempted to add data from physiological and clinical fields which do not always accord with the speculative explanations of the experimental results on habit formation (including the psychology of skill) which have apparently been well read by the author.

Some of the theoretical difficulties are surmounted by the author's refusal to accept the "all or none" law for nervous tissue. His tacit assumption that an efferent neuron may act to stimulate directly an afferent neuron (quoted above) also makes the speculative treatment more simple, even if it thereby throws doubt upon the whole of the author's hypothesis. The failure to include any facts re-

garding habit formation in relation to the activities of the nervous system should be corrected in any subsequent edition of the book. The absence of any satisfactory discussion of the facts or data regarding the reflexes, upon which much of the speculative discussion hangs, is also unfortunate.

There is a section on the use of the term "center" as applied to different parts of the nervous system which may be commended to the careful consideration of all neurologists, psychiatrists, physiologists, and psychologists.

SHEPHERD IVORY FRANZ

GOVERNMENT HOSPITAL FOR THE INSANE

Sex Hygiene. F. H. GERRISH. Boston: Gorham Press, 1917. Pp. 51. 60 cents.

This booklet contains the lecture given many times by Dr. Gerrish to college boys. It may appeal to a few readers but its main appeal must have been due largely to the talking personality of the author.

SHEPHERD IVORY FRANZ

GOVERNMENT HOSPITAL FOR THE INSANE

Rational Sex Ethics. W. F. ROBIE. Boston: Badger, 1916. Pp. 356. \$3.50.

As a physician dealing with nervous and mental disorders Dr. Robie has had the opportunity to obtain the sexual histories of many patients, and in this book they are utilized as occasion demands. The returns from a questionnaire to normal (and other) people are also included, and the sexual habits, the sexual feelings, etc., of a number of individuals are described. Extracts from popular teachings are given, some are criticized adversely and are justly estimated, while others are praised. The mawkish and religious books which flood the country are deprecated, as being unscientific even though their object may be praiseworthy. The suggestions on bibliography are good for those who desire to know some of the best that has been written and who are not interested in the subject from a personally morbid craving for the salacious.

While there is nothing new of a psychological, physiological, or sociological character beyond the case histories, the book may be recommended to those who desire information, more scientific than that contained in the pages of some of our dailies and other periodicals and in those of the religio-scientific books. It should, however, be stated that what is provided is too strong food for the adolescent and for the sexless prude.

SHEPHERD IVORY FRANZ

GOVERNMENT HOSPITAL FOR THE INSANE

REPORT

REPORT OF COMMITTEE ON REEDUCATION RE-
SEARCH

Following is a report of the efforts of the Committee on Re-education of the American Psychological Association, and of the similar Sub-Committee of the Psychology Committee of the National Research Council. The report is published, in accordance with the custom of other similar committees and sub-committees, to show the progress that has been made up to the present time.

Immediately after the publication of the report of the Conference on Reeducation held under the auspices of the General Medical Board of the Council of National Defense (see the *BULLETIN*, 1917, 14, 229), much general and special medical and other scientific interest was manifested throughout the country. Inquiries regarding various aspects of the problems were received from individuals, from representatives of local and national organizations, and from teachers. Definite questions were answered as well as the chairman could, and suggestions were made when requested. Much of this interest could be called sporadic, or scattered, there being apparent no inclination to look at the whole, but rather local or individual problems and needs to be suggested or solved.

Requests for suggestions regarding investigations were, however, made by three individuals representing national and general aspects of the work: by Major Edgar King, M.C., U.S.A., for the Office of the Surgeon General of the Army; by Mr. Charles H. Winslow, Assistant Director in charge of Research of the Federal Board for Vocational Education, for that Board; and by Dr. Stewart Paton, of the War Work Committee of the National Committee for Mental Hygiene, for that Committee.

Memoranda were prepared and sent for the purpose to each of these with the following results. Dr. Paton acknowledged the receipt of the memoranda (dated September 20), reporting that he had referred them to Major Pearce Bailey, M.R.C., U.S.A., the chairman of the War Work Committee. No action has been reported to date by Major Bailey. The memoranda (dated September 18) written for Mr. Winslow were acknowledged, but information of further action has not been received. Major King, to whom the memoranda were given on September 17, requested more definite information and suggestions, which were furnished in subsequent memoranda. The further progress in this direction will be noted below.

All three memoranda were in the main alike, but differing in slight details on account of the special interests involved. They pointed out the necessity for the investigation of certain problems of reëducation, with special reference to those matters which may be called "functional restoration" or "functional adaptation." They suggested that investigations in these lines, at least from the medical aspect, were to be considered on a par with investigations of pathogenic bacteria, curative sera, and the like. From the educational side it was suggested that certain methods be investigated in order to discover those giving the best results with adults having different maiming conditions. Such investigations, it was pointed out, are necessary in order "to save time, to reduce expense, and to bring about the best results" in functional recovery of the maimed and crippled.

The investigations most urgently needed are those which are planned to discover methods to better (if possible) the following conditions: (1) those disabling accidents which at present are considered to be incurable or for which no functional adaptation is recognized, and (2) the most frequently encountered accidents which are now dealt with in a way, but for whose betterment it is recognized that methods of improved technique should or may be devised. Investigations of these kinds, it was suggested, could very well be prosecuted in this country with cases of industrial accidents, which resemble closely those of war, and many cases of these industrial accidents would be available for study in such large commercial and industrial centers as Boston, Chicago, and New York. It was also pointed out that in the published reports from England and France which were examined the fact had frequently been deplored that time or men had not been available for the investigations of methods, and it was suggested that investigations in this country should be inaugurated immediately in order that our maimed and crippled soldiers might have the benefit of any improvement in technique or of newly devised therapeutic measures. The inauguration of such investigations in this country, and provision for their temporary prosecution, it was pointed out, would be advantageous in other directions, in that the work could be done by civilians. The preliminary investigations would also permit the determination and selection of the more capable men for further work, and nearer the firing line, if the continuation of the investigations was considered to be desirable.

On September 19, in conversation, Major King suggested that

any investigations should be conducted as near as possible to the Office of the Surgeon General, and that the work should be planned to be started in Washington, either at the Walter Reed General Hospital of the Army, or at the Government Hospital for the Insane where certain facilities for the conduct of the work were immediately available. He requested that additional memoranda be submitted to him in which detailed information be given of a few problems, of cost, and the like. This was done September 24, 1917.

Three problems were suggested: a comparative study of the paralyses, with reference to the effects of different procedures; a consideration of the anesthetics which at present are practically entirely neglected as far as treatment is concerned; and methods of bringing about new coordinations in amputated cases. The laboratory of the chairman of the committee was reported as available, but it was pointed out that Washington is not an industrial center and that until Army casualties were received in large numbers it might not be possible to make as good a selection of cases as would be desirable. This suggestion was also made as an item of expense since being already in Government work the chairman could devote time to such investigations without the necessity for special employment by the War Department. Three full-time and paid workers were suggested with the addition of an assistant and a clerk, such workers to be employed by the War Department in order that their full time should be devoted to the work. The time to be devoted to the investigations in the preliminary period was set at four months, this amount of time being considered to be necessary on account of the long processes involved.

In a letter dated November 12, 1917, in answer to a request for any information regarding the decision of the Surgeon General regarding the matter, Major King wrote that the memoranda "will receive attention and that it is the intention of the Surgeon General to make whatever investigations along the lines suggested by you as found to be possible. Up to the present time the matter has continued to be in a formative stage."

SHEPHERD IVORY FRANZ, *Chairman.*

GOVERNMENT HOSPITAL FOR THE INSANE

BOOKS RECEIVED

- LOCKE, P. *The Conversion of Hamilton Wheeler*. Bloomington, Ill.: Pandect Publ. Co., 1917. Pp. 285. \$1.25.
- FREEMAN, F. N. *How Children Learn*. Boston: Houghton Mifflin, 1917. Pp. xiv+322. \$1.60.
- SMITH, W. B. *An Introduction to Educational Sociology*. Boston: Houghton Mifflin, 1917. Pp. xvii+412. \$1.75.
- COE, G. A. *A Social Theory of Religious Education*. New York: Scribners, 1917. Pp. xiii+361. \$1.50.
- CAREY, G. W. *The Tree of Life*. Los Angeles: G. W. Carey, 1917. Pp. 60.
- GRAHAM, B. *The Philosophy of Christianity*. Columbia, S. C.: R. L. Bryan Co., 1917. Pp. ix + 144.
- ANDERSON, B. M., JR. *The Value of Money*. New York: Macmillan, 1917. Pp. xxviii + 610. \$2.25.
- CROCE, B. *Logic as the Science of the Pure Concept*. (Trans. by D. Ainslie.), London: Macmillan, 1917. Pp. xxxiii + 606. \$3.50.
- GATES, A. I. *Recitation as a Factor in Memorizing*. Archives of Psychol., No. 40, 1917. Pp. 104. \$1.00.
- PINTER, R. & PATERSON, D. G. *A Scale of Performance Tests*. New York: Appleton, 1917. Pp. x + 218. \$2.00.
- THOMPSON, E. L. *An Analysis of the Learning Process in the Snail. Physagyrina Say*. Behav. Monog., 1917, iii, No. 3. Pp. iii + 97. \$1.25.
- MAY, M. A. *The Mechanism of Controlled Association*. Arch. of Psychol., 1917, No. 39. Pp. iv + 74. 75 cents.
- HUOT, L. & VOIVENEL, P. *Le Courage*. (Pref. by E. Etienne.) Paris: Alcan, 1917. Pp. vii + 358. 3 fr. 50.
- CARROLL, R. S. *The Mastery of Nervousness*. New York: Macmillan, 1917. Pp. 346. \$2.00.
- DE FURSAC, J. R. *Manuel de Psychiatrie*. (5me edit.) Paris: Alcan, 1917. Pp. viii + 509. 7 fr.
- GEMELLI, A. *Il nostro Soldato*. Milano: Vita & Pensiero, 1917. Pp. xii + 339.
- LUCIANI, L. *Human Physiology*. Vol. IV. (Trans. by F. A. Welby; Ed. by G. M. Holmes; Pref. by J. N. Langley.) London: Macmillan, 1917. Pp. x + 519. \$5.25.
- Psychological Tests: A Bibliography*. New York: Bur. of Educ. Expts., 1917. Pp. 75. 25 cents.

NOTES AND NEWS

THE November number of the *BULLETIN*, dealing with Social and Religious Psychology, was edited under the direction of Professor J. H. Leuba, of Bryn Mawr College.

PROFESSOR C. H. JOHNSTON, of the University of Illinois, was killed in an automobile accident on September 20.

DR. H. R. CROSLAND, of the University of Minnesota, has been appointed professor of psychology in the University of Arkansas.

PROFESSOR DAVID A. ANDERSON, formerly of the University of Washington, has accepted the headship of the department of psychology and education in the Pennsylvania State College.

PROFESSOR J. MARK BALDWIN has been appointed lecturer in the *École des Hautes Études sociales* at Paris

AT Swarthmore College Professor C. Fisher, of the West Chester State Normal School, and Professor S. B. Davis, of Ursinus College, will conduct the work in psychology and education.

DR. JOSIAH MORSE, of the University of South Carolina, has been granted leave of absence for the duration of the war to undertake Red Cross work in South Carolina, and to be field director of the work at Camp Jackson.

DR. T. L. BOLTON has been appointed professor of psychology at Temple University.

DRS. CARL ROSENOW and Jacob Kantor have been appointed instructors in the department of psychology of the University of Chicago.

THE University of Rochester has expanded its work in psychology, with a laboratory thoroughly equipped for experimental purposes, and quarters for animal experimentation. The work is under the charge of Professor L. A. Pechstein.

PROFESSOR L. WITMER, of the University of Pennsylvania, has sailed to undertake the direction of social service work under the auspices of the American Red Cross.

PUBLISHER'S NOTICE

OWING to the number of psychologists engaged in government work, and the consequent decrease in psychological investigations, it has been decided to suspend temporarily the publication of the *Journal of Experimental Psychology*. The publication will be resumed as soon as conditions warrant. Meanwhile the experimental material will be published in the *Psychological Review*.

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